



Cereal Production Policies in Selected African and Asian Countries: Lessons for the SADC Region

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ABSTRACT The study analyses policies governing cereals production in selected African and Asian countries and the subsequent lessons that could be learnt by the Southern African Development Community (SADC). The study is qualitative and looks at policy effectiveness in terms of the intended goals. It highlights trends experienced in the region with regards to policy formulation and subsequent production. The study finds out that policies promoting production of cereals in selected countries in Africa and Asia managed to enhance higher yields of the cereals. The recommendations of the study are that African countries should take a leaf from Asian countries who have managed to implement right production and trade policies. The policy actions include subsidies to farmers, introduction of new higher yielding crop varieties, and market access.

INTRODUCTION

Policy making has influenced development in many countries. This has resulted in some countries developing at a faster rate than others. Without proper policies it is rare to achieve intended goals. On that note for a country to achieve meaningful development it is imperative that policy formulation is given the highest priority. Blanco (2018) asserts that many African and Asian countries have implemented various policies that enhanced production in various sectors including agriculture. Cereal crops being staple food in many countries have been given top priority in terms of influencing their production by governments (Ugwu and Kanu 2012; Xu et al. 2014). Rice, maize, wheat and sorghum are the main cereals that feed the world. As such production, consumption, trade policies and investments of the cereal sector have generated a lot of interest to the researchers and governments. This is supported by FAO (2018) that asserts that food security has thus become an important aspect in agricultural policy as governments work towards reducing food poverty levels in their respective economies.

In some cases cereal crops have been used for repressive measures by sitting governments and as well as foreign powers to control less developed countries through restricting essential food imports. As such many policies have been formulated and implemented to achieve high yields in agriculture. Without proper poli-

cy the high yields could not be attained. The sole purpose for self-sufficiency is to counter any challenges that come with importing the commodities as a result of inadequate production. Adequate production is the main goal of any government to be able to feed its population (Xu et al. 2014). Increased production in any economy will enhance international trade of the goods, as the surplus will be exported to other countries. Accordingly, Olga (2017) also buttresses this by asserting that food policies have benefitted Russia immensely as it worked towards import substitution. As a result Russia became almost self-sufficient in most of its food requirements.

Overview of Policy Implementation in Selected Countries

Government policy enhances production of certain products at the expense of others. This shows that policy is very important to achieve the desired goals. Pingali (2012) and Yao (1999) support this notion although their studies point out that this can be detrimental in terms of efficiency. The studies assert that policy intervention can enhance incentives for production of certain crops at the expense of others. This can also result in inefficiency. However in many cases government intervention is desirable to achieve intended goals.

As Russia embarked on import substitution domestic products have saved the country bil-

lions of dollars. This was possible as the country had put several policies in place to enhance production of food especially cereals. It has cut its food import bill by more than half, becoming a good example of the success of policy implementation to enhance production (Olga 2017).

In Ethiopia the policy on fertilizer application has the effect of increasing the yield of teff. Teff is an important cereal in Ethiopia, which is grown for its seed and is among the most important staple crops in the country. The increase in net crop income per area of land cultivated and also per capita income increase was due to the policy implementation that required the use of fertilizer in production of the crop, although the increase was marginal (Matsumoto and Yamano 2010). Policy implementation is in this case given credit for the improvement of both yield and income.

Agricultural economy of South Africa grew rapidly under the apartheid government due to strong state subsidies that supported programmes aimed at enhancing commercial production. Similar support programmes and government subsidies were seen as encouraging the agricultural economies of the United States of America and Europe. Many governments the world over have been supporting their agricultural production through subsidies to farmers (Khapayi and Celliers, 2016).

Choge (2012) made presentations at the Global Development Network in Nairobi that supported policy to enhance agricultural production in Africa and Asia. It was the concern of the presentation that prices of inputs and that of output constrain production of agricultural products. FAO (2018) asserts that there is need to have agricultural policy to influence input and output prices so as to enhance production of the crops.

Pingali (2012) gave a detailed retrospective of the green revolution, where the study looked at its achievement and limits in terms of agricultural productivity improvement. The impression is that those countries that successfully had the green revolution such as India was a result of government active roles in influencing production of agricultural crops and hence the subsequent increased income of the producers. Pandey et al. (2016) also assert that agricultural interventions have the potential to influence nutritional outcomes in the South Asia. The study gives the impression that with favorable nutri-

tion sensitive food and agricultural policies it is possible to enhance production.

In the 1990s and 2000s Zambia liberalized its economy, including the liberalization of the agricultural sector. This resulted in depressed maize production due to use of less fertilizer. The Government of Zambia later implemented two subsidized input transfer programmes in the 2000s, the Fertilizer Support Programme and the Food Security Pack. These programmes succeeded in increasing fertilizer use and maize output. Correct policies in this case enhanced production of maize as required by the government (FAO 2017).

Objectives of the Study

The objectives of the study are;

- (i) To determine the effect of cereal production policies in selected African and Asian countries.
- (ii) To determine the lessons for the SADC region in respect of production policies in other African and Asian countries.
- (iii) To come up with relevant production policy conclusions and recommendations drawn from the outcomes and findings of the study.

METHODOLOGY

The approach of the study is qualitative, where a policy success is analyzed in terms of its effects on production within a country. The policies of each member country are analyzed and the result determined. Qualitative research is non-numeric and is concerned with gathering information in great detail, in which its main objective is to obtain in-depth information. In this regard, the research makes use of available information. Information was sourced from United Nations Food and Agriculture Organization (UNFAO) Database. The general advantages of the qualitative approach for the study are that the issues and subjects covered have been evaluated in depth and in greater detail. The following section looks at country analyses for two African (Kenya and Nigeria) and two Asian (China and India) countries. These countries have been selected as a result of their dominance in the respective continents of Africa and Asia in the production of cereals. The main focus of the analysis is the 2009 to 2016 period.

OBSERVATIONS AND DISCUSSION

Review of Case Studies on Cereal Production

1. Kenya

The regulatory environment governing cereal production in Kenya has undergone significant legislative changes. This has been a result of the enactment of the Kenyan Agriculture, Fisheries and Food Authority Act (2013), the Crops Act of 2013 and the Agricultural and Livestock Research Act, also of 2013. These policies were put in place to complement other legislative pieces that governed agriculture earlier to these. These have the overall goal of guaranteeing national food security by ensuring adequate production of cereals. The initiatives provide support to farmers as they move from being subsistence farmers into commercial farming (Government of Kenya 2015). Other policies supporting national food security efforts are: (i) National Agricultural Sector Extension Policy (NASEP) (ii) Land Policy, Environment, Water and Irrigation, Livestock, Oceans and Fisheries Policy, and (iii) ASAL Policy, among others. Table 1 shows

the agricultural policies that had stirred agriculture in Kenya for the past decade.

The Kenya agricultural policies given in Table 1 sought to raise the profile of the agricultural sector so that it effectively contributes to the national development aspirations of the country, through exportation of surplus produce. Kenya Vision 2030 guides' policy in agriculture and other policies come as ad hoc pieces that complement the effort of this main vision of increasing productivity in the sector.

Table 2 shows the production levels that have been realized prior to the 2013 Acts and after. The general trend has been attributed to the various policies before 2011 and the coming in of the 2013 Acts strengthened the effort of increasing yields. However, the fluctuating volumes of crops production as shown in the table are attributed to other natural phenomena such as climatic conditions that did not favour production of the given crops.

Kenya has been making heavy investments in agricultural infrastructure as part of its production enhancement initiatives. As from 2009 as shown in Table 2 there has been a general steady increase in production. Despite this, the

Table 1: Agriculture sector policies in Kenya

<i>Period</i>	<i>Sector</i>	<i>Policy</i>	<i>Description</i>
2002-2017	Agriculture	Kenya Rural Development Strategy (KRDS) Development.	Long-term strategies for the improvement of rural Kenya over the next 15 years. Emphasizes food security for poverty reduction in rural areas. Targeted mainly maize.
2004-2014	Agriculture Food security	Strategy for Revitalizing Agriculture (SRA)	Increase food security through increased maize productivity. The objective was to increase productivity in agriculture, promotion of investment and private players' participation in agricultural activities.
2007	Agriculture	Kenya vision 2030	The vision identifies agriculture as the main sector of raising the country's gross domestic product in the country.
2009	Agriculture	The Agriculture Sector Development Strategy (ASDS)	Was developed to align agricultural initiatives to Vision 2030.
2009	Agriculture	The National Food Security and Nutrition Policy (NFSNP)	Addresses the need for enhanced food and nutrition security, and information management. It coordinates the mandates of different agencies to enhance food security in the country.
2013	Agriculture	Agriculture, Fisheries and Food Authority Act	Increasing crop production through irrigation
2013	Crops	Crops Act	Increasing crop production through subsidies to farmers
2013	Agriculture	Agricultural and Livestock Research Act	Research in high yielding varieties

Source: Compiled from information sourced from Ministry of Agriculture (Kenya) (2017)

Table 2: Cereal production in Kenya (metric tonnes)

<i>Year</i>	<i>Maize production</i>	<i>Wheat production</i>	<i>Rice production</i>	<i>Sorghum production</i>
2000	2,160,000	204,232	52,349	81,536
2001	2,790,000	256,997	45,000	116,607
2002	2,408,596	307,215	45,000	115,584
2003	2,710,848	378,665	40,502	127,215
2004	2,607,139	379,425	49,295	69,508
2005	2,905,559	368,879	62,677	149,656
2006	3,247,200	329,193	64,840	131,188
2007	2,928,793	322,320	47,256	147,365
2008	2,367,237	336,688	21,881	54,316
2009	2,439,000	219,301	42,202	99,000
2010	3,464,541	511,994	85,536	164,066
2011	3,376,862	268,482	111,229	159,877
2012	3,749,880	441,944	138,204	166,627
2013	3,592,688	449,641	125,256	168,857
2014	3,513,171	328,637	112,263	177,553
2015*	3,300,000	420,000	149,661	170,000
2016*	2,900,000	380,000	132,000	140,000

Source: Calculated from FAO Statistics Division data (2017)

*Source: FAO GIEWS Country Cereal Balance Sheets (2017)

agricultural sector of Kenya is still constrained by market inefficiencies such as price constraints for agricultural produce. This provides disincentives for crop production in the country. Also low diversification hinders Kenya's export potential. However the country's agricultural sector policies have been gradually adapting to the country's general policy towards commercialization of the agricultural sector (FAO 2017).

Kenya's experience is similar to that of Russia that embarked on import substitution domestic products and saved money that could be used for other competing priorities. As Olga (2017) puts it, this has been possible as the country had put several policies in place to enhance production of food especially cereals. With no policies in place Kenya could not move forward in terms of cereal production.

2. Nigeria

Nigeria is the largest producer of cereals in western Africa. While its agriculture is dominated by roots and tubers, the country's problems and challenges revolve mainly on cereals. It is in this category of cereals that the government has implemented most of its agricultural and trade policies that have seen the improvement of cereals production in the country ensuring food security, self-sufficiency and exportation. It has implemented various policies in the past decade that have seen it dominating in cereal production in the region. Table 3 gives the policies Ni-

geria has adopted for the past two decades that had aided its agricultural activities. The policies have worked well for the country where domestic food production rose by an incremental 20.1 million tonnes for the past half-decade (Iwuchukwu and Igbokwe 2012). Accordingly the Agricultural Transformation Agenda of 2011 has managed to maintain the high production levels through high government expenditure in the sector.

The government is prioritizing crops production and its policy focus is on achieving domestic food security improvement and boosting of exports. The initial focus on domestic food security from 2016 to 2018 is expanding rice, wheat and maize production. The policy has seen an overall increase in the production of these crops, as shown in Table 4. The mainstay of the policy includes evolution of strategies ensuring self-sufficiency and improvement of technical levels and economic efficiency in food production. In some way this has been achieved as Nigeria's cereals production equals almost half of western Africa combined (Nzeka 2014). Also a specific policy, Agriculture Transformation Agenda (ATA) has also been crafted specifically for two of the cereals that are rice and sorghum so as to reduce food imports.

Ugwu and Kanu (2012) assert that the government of Nigeria implemented the following strategies in agriculture for a period of three decades, among other initiatives: the exploitative strategy, agricultural project strategy, direct pro-

Table 3: Agriculture sector policies in Nigeria

<i>Period</i>	<i>Sector</i>	<i>Policy</i>	<i>Description</i>
2001	Agriculture	The New Nigerian Agricultural Policy	- To achieve self-sufficiency of food supply and food security. - To increase production of agriculture raw materials. - To increase production and processing of export crops. - To utilize agricultural resources in a rational way, so as to improve protection of agricultural land resources from drought, and other natural phenomena. - To increase application of modern technology in agriculture.
2002	Agriculture Food security	National, Special Programme on Food Security (NSPFS)	- Elimination of rural poverty. -Assisting farmers in increasing their output, productivity and income; -Strengthening the effectiveness of research and extension service training and educating farmers on farm management for effective utilization of resources.
2011-2016	Crops	Agricultural Transformation Agenda (ATA)	- Rebuilding agricultural sector. - Lending to farmers by the financial system. - Reduction of food imports by increasing production.
2016-2020	Agriculture	The Agriculture Promotion Policy	- Research in high yielding varieties. - Input supply and financing. - Infrastructure and logistics. - Developing new higher yielding varieties, such as rice. - Market access. - Reform of the Agricultural Research Network (ARCN).

Source: Compiled from information sourced from Nigerian Federal Ministry of Agriculture and Rural Development (2017)

Table 4: Cereal production in Nigeria (metric tonnes)

<i>Year</i>	<i>Maize production</i>	<i>Wheat production</i>	<i>Rice production</i>	<i>Sorghum production</i>
2000	4,107,000	73,000	3,298,000	7,711,000
2001	4,596,000	51,000	2,752,000	7,081,000
2002	4,890,000	54,000	2,928,000	7,534,000
2003	5,203,000	58,000	3,116,000	8,016,000
2004	5,567,000	62,000	3,334,000	8,578,000
2005	5,957,000	66,000	3,567,000	9,178,000
2006	7,100,000	71,000	4,042,000	9,866,000
2007	6,724,000	44,000	3,186,000	9,058,000
2008	7,525,000	53,000	4,179,000	9,318,000
2009	7,358,260	80,000	3,546,250	5,279,170
2010	7,676,850	110,000	4,472,520	7,140,970
2011	8,878,456	165,000	4,612,614	5,690,145
2012	8,694,900	100,000	5,432,930	5,837,106
2013	8,422,670	80,000	4,823,330	5,300,270
2014	10,800,000	90,000	6,734,000	6,741,100
2015*	9,540,000	60,000	4,750,000	5,663,000
2016*	9,598,000	60,000	4,950,000	6,461,000

Source: Calculated from FAO Statistics Division data (2017)

*Source: FAO GIEWS Country Cereal Balance Sheets (2017)

duction strategy and integrated rural development strategy. These were implemented so as to realize self-sufficiency. This resulted in notable changes in the production levels in agri-

culture for the better, especially the cereal crops.

Nigeria is in the category of Kenya where it has managed to put in place policies that en-

hanced cereal production. Khapayi and Celliers (2016) and FAO (2018) assert that agricultural policies influence agricultural production especially where the governments commit themselves to provide huge funds towards that cause. The South African experience during the apartheid era is a good example where the government funded commercial farmers meeting almost all their farming requirements.

3. China

China has been able to feed its vast population which constitutes about twenty percent of the global total from its meager agricultural resources. This success has been coupled with a two and a half fold in population growth and a four and a half fold in total grain production. Political will on land distribution, technical progress, and use of adequate inputs in rice and maize, have all enhanced China's food production capacity. These of course were a product of sound agricultural policy that encouraged the production of cereal crops to meet local demand (Xu et al. 2014).

China has used a mix of policies driven by three major factors that are; the desire to modernize its agriculture; rural-urban income equality concerns and rural unrest potential; and the need to maintain food security and food self-reliance. Given in Table 5 are the policies adopted

by China in the past decade. China has brought up the supporting policies of give more, take less and liberalization initiatives to support agriculture and rural development since 2003 (Xu et al. 2014). These have managed to boost farmers' income growth, strengthened comprehensive production capacity of agriculture and constructed what they called the new countryside. These policies have helped provide income support for farmers.

China's grain self-sufficiency policy has managed to enhance bumper harvests, although this came with heavy government support in agriculture. Without the involvement of the government it would be difficult for the farmers to achieve higher yields. The interventionist stance of the government has paid dividends in the sense that higher yields are realized and ensure food security. Table 6 shows production statistics for the period 2000-2014. There has been a general steady increase for the crops and this has been attributed to the policies in place that encouraged production of the crops.

China has managed to do well with its policies in the production of cereals and also in its overall agricultural produce. It produces about eighteen percent of the world's cereal grains. This makes the country the world's largest agricultural economy. It is able to feed its population and meet a significant amount of export market. It is also the largest global producer of

Table 5: Agriculture sector policies in China¹

<i>Period</i>	<i>Sector</i>	<i>Policy</i>	<i>Description</i>
2002	Agriculture	General-input subsidy scheme	- Supporting farmers with input, such as fertilizers and seed to cover farming costs
2004	Agriculture	Agricultural tax reform	- In 2006 the tax was eliminated nationwide. This saved farmers \$21 billion annually .- The government also instituted direct payment to grain farmers
2005	Agriculture	Machinery and equipment subsidy	- This included agricultural insurance subsidy.
2005-2013	Agriculture	Price support to farmers	- Aggressive support to farmers' income to influencing production incentives. - China liberalized its domestic grain market and set minimum purchase prices for key grain products.
2014-2015		New China agricultural policy reforms	-Minimum price policy for wheat and rice.

Source: Compiled from information sourced from various Government of China publications (2017)

¹The policies are ongoing upto the current period where the government continues to support farmers in various areas. The policies are supported by heavy investment by government and private sector in agricultural research of new varieties and agricultural infrastructure and equipment. There are also many research institutes and organisations that support these initiatives.

Table 6: Cereal production in (metric tonnes)

<i>Year</i>	<i>Maize production</i>	<i>Wheat production</i>	<i>Rice production</i>	<i>Sorghum production</i>
2000	106,178,315	99,636,127	189,814,060	2,608,456
2001	114,253,995	93,873,234	179,304,887	2,717,652
2002	121,496,915	90,290,262	176,342,195	3,346,918
2003	115,997,909	86,488,264	162,304,280	2,879,542
2004	130,434,297	91,952,238	180,522,603	2,340,826
2005	139,498,473	97,445,196	182,055,138	2,554,325
2006	151,731,441	108,466,271	183,276,048	2,587,732
2007	152,418,870	109,298,296	187,397,460	1,928,895
2008	166,032,097	112,464,292	193,284,175	1,839,532
2009	164,107,560	115,115,364	196,681,169	1,677,319
2010	177,540,788	115,186,178	197,212,003	2,460,411
2011	192,904,232	117,414,034	202,667,169	2,054,316
2012	205,719,284	121,030,059	205,936,129	2,559,064
2013	218,621,905	121,930,527	205,936,129	2,894,800
2014	215,812,100	126,212,750	208,239,610	2,962,203
2015*	219,554,000	128,850,000	206,934,000	3,000,000
2016*	216,000,000	128,800,000	208,400,000	3,200,000

Source: Calculated from FAO Statistics Division data (2017)

**Source:* FAO GIEWS Country Cereal Balance Sheets (2017)

wheat, and as a result it has played a significant role in world trade regarding cereals. China's success in food production has been hinged on active government intervention in its agricultural activities. Cereal production has increased due to funds channeled to many researches whose findings were implemented by farmers (Cui et al. 2018).

4. India

India is one Asian country that has done well in its cereal production. The 2015 production season level at 257.07 million tonnes of food grains during 2014-15 as compared to 265.57 million tonnes during 2013-14 (Indian Ministry of Agriculture Report 2015). The grains include rice, maize, wheat and sorghum. The production levels are attributed to sound agricultural policy that enabled an economic environment for the production of these crops. Table 7 gives agricultural policies adopted by India in the past two decades.

The government of India has been able to protect, rehabilitate and optimise the use of good quality agricultural land for agricultural purposes. This has enabled it to foster higher productivity. This has sustained local agriculture as a primary production sector and optimised the contributions of locally produced food as an alternative supply, as well as to meet the market demand for domestically grown produce. The policies encouraged resource productivity by

creating infrastructure in less developed areas, encouragement of nitrogen fertilizers over other nutrients, cost effective expansion of irrigated areas. These have been achieved to a larger extent and results are being realised in terms of higher productivity per hectare under cropping. This has managed to enhance production of the cereal crops as shown in Table 8.

The general high yields in agricultural products, especially cereals have been attributed to heavy investment in research and development. The country has various agricultural institutes that include National Seed Research and Training Centre, Protection of Plant Varieties and Farmers' Rights Authority, National Institute of Plant Health Management, Central Island Agricultural Research Institute, among many that also include universities. These compliment the researches by the Pusa Institute that is also called the Indian Agricultural Research Institute (IARI). This is India's leading national institute for agricultural research; education and extension. They do research on different crops and prescribe policies that would enhance more productivity. Table 8 shows a steady increase in cereal production that has been attributed to sound policies implemented by the government.

Just like China, India has relied much on researches in the agricultural sector. It has pumped more funds towards that cause and results have been positive. FAO (2017) has been encouraging governments to channel significant amounts towards agriculture in their national budgets.

Table 7: Agriculture sector policies in India¹

<i>Period</i>	<i>Sector</i>	<i>Policy</i>	<i>Description</i>
2000	Agriculture	New Agricultural Policy (NAP)	- Aimed over four percent annual growth rate. - Greater private sector participation through contract farming. - Protection of farmers against prices. - Launching of national agricultural insurance scheme. - Free movement of agricultural commodities throughout the country. - Utilisation of country's water resources for irrigation potential. - Assuring capital inflow and agricultural markets. - Exempting capital gains tax payments on compulsory acquisition of land for agriculture. - Supply of quality inputs to all farmers in the country. - Creating off-farm employment in rural areas and to set up agro-processing units.
2000-2020	Agriculture	Agriculture Policy: Vision 2020	-Developing a clear long-term vision in agriculture. - Sustainable natural resource management. - To eliminate bureaucracy in institutions and enhance self-help framework. - To articulate a clear vision on incentive framework in agriculture.

Source: Compiled from information sourced from Government of India publications (2017)

¹The policies are ongoing upto the current period where the government continues to support farmers in various areas. The policies are supported by heavy investment by government and private sector in agricultural research of new varieties and agricultural infrastructure and equipment, as evidenced by the existence of many research institutes and organisations.

Table 8: Cereal production in India (metric tonnes)

<i>Year</i>	<i>Maize production</i>	<i>Wheat production</i>	<i>Rice production</i>	<i>Sorghum production</i>
2000	12,043,200	76,368,896	12,746,896	7,529,400
2001	13,160,200	69,680,896	139,900,000	7,556,800
2002	11,151,700	72,766,304	107,730,300	7,070,000
2003	14,984,300	65,760,800	132,789,000	7,012,400
2004	14,172,000	72,156,200	124,697,100	6,681,300
2005	14,709,900	68,636,900	137,690,100	7,244,300
2006	15,097,000	69,354,500	139,137,000	7,629,600
2007	18,955,400	75,806,700	144,570,000	7,150,800
2008	19,731,400	78,570,200	148,036,000	7,925,900
2009	16,719,500	80,679,400	135,673,000	7,245,600
2010	21,725,800	80,803,600	143,963,008	6,698,200
2011	21,760,000	86,874,000	157,900,000	7,003,100
2012	22,260,000	94,880,000	157,800,000	5,980,000
2013	23,290,000	93,510,000	159,200,000	5,280,000
2014	23,670,000	94,483,000	157,200,000	5,390,000
2015*	21,810,000	86,530,000	156,472,000	4,410,000
2016*	25,855,000	93,500,000	161,500,000	5,500,000

Source: Calculated from FAO Statistics Division data (2017)

*Source: FAO GIEWS Country Cereal Balance Sheets (2017)

The Effect of Policy on Agricultural Production of Cereals

This study analyzed various policies governing production of cereals in selected African

and Asian countries. The focus was the analysis of policies governing the production of maize, wheat, sorghum and rice. These form the food basket of the world's widely consumed cereals especially in Africa and Asia. Their trade

on the international market is a result of enhanced production in their respective countries of origin.

It has been found that the government of Kenya implemented various policies for the agricultural sector. This has seen the enactment of the Agriculture, Fisheries and Food Authority Act of 2013, the Crops Act of 2013 and the Agricultural and Livestock Research Act, also of 2013. These policies complemented other legislative pieces that governed agriculture earlier to these (Government of Kenya 2015). The policies enhanced cereal crop production in the country. Also Nigeria's agricultural policy was designed to achieve overall agricultural growth and development. The policy has seen an overall increase in the production of cereal crops. Nigeria has achieved self-sufficiency in the provision of cereal crops in the market especially for maize, wheat and rice. This has also seen the country exporting the said crops to its neighbors (Nzeka 2014).

For the Asian selected countries it is China that has done much well as compared to others. It has been able to feed its vast population which constitutes about twenty percent of the global total from its meagre agricultural resources. China's grain self-sufficiency policy has managed to enhance bumper harvests. India's production levels of cereals are not discouraging. The good harvests are attributed to sound agricultural policy that enabled an economic environment for the production of these crops. The policy encouraged heavy investment in infrastructure in most less developed areas. The interventionist policies in the two Asian countries (China and India) analysed included investments in fixed capital within the agricultural sector. The initiatives have paid dividends as this interventionist strategy has enabled the country to produce enough for domestic and export markets (Iwuchukwu and Igbokwe 2012; Lioubimtseva et al. 2015; Xu et al. 2014).

Lessons Learnt and the Implications for SADC Region

The policies promoting production of cereals in selected countries in Africa and Asia managed to enhance higher yields of the cereals. The policy actions include subsidies to farmers, adequate and timely supply of quality inputs to farmers, research in high yielding varieties, ag-

ricultural infrastructure and logistics, introduction of new higher yielding crop varieties through research institutes, market access, tax elimination and setting up of agro-processing units in farming areas. It is the government interventionist initiatives that witness high production levels. China and India are good examples of Asian countries that have produced beyond their cereals requirements. The surplus has been exported over the years. FAO (2017) asserts that world cereal production is attributed to the production capacities of many countries that have sound agricultural policies. Among these, FAO mentions China, Canada, Russia, USA, Ukraine, Paraguay, and Sudan in the wheat category, while China, India and Nigeria fare well in other cereals. China and India continue to dominate cereal production in Asia. The 2016 production prospects have been marred by the prevailing weather conditions that have depressed the prospects for good harvests.

Cereal production in SADC is dominated by South Africa. In other member states cereal production and policy debates take place in the background of this dominance of South Africa. The success of South Africa comes mainly from the agricultural trade policy tools that it uses to promote commercial cereal production. Foreign investment plays an important role in launching cereal sector development due to sound policies that promotes corporate sector participation in agriculture. OXFAM (2015) has also reiterated that production of cereals in southern Africa has been stagnant for the past half-decade and the shortfall has been met by imports. However as from 2014 there has been significant increase save for the 2016 season.

SADC countries can also learn from the Asian countries particularly on the number of policies that can be implemented over a period. China and India do not have a long list of policies, unlike the African nations. They have few policies that are intense and these are well implemented to achieve the desired results. Most SADC countries do encourage the production of cereals and control their consumption in their countries. However, on the same note in most cases there are no specific regulations that encourage the production of these, but the encouragement comes under the general agricultural policy, and then they are governed by pieces of legislation under those policies. Clear policies are needed in that respect for the SADC countries. Kenya and Nigeria have comprehen-

sive policies for the production of each crop, and this has paid dividends in encouraging production. Also SADC countries need to pool their resources together to put heavy investment in agriculture. Pooling resources together has also assisted Europe to reach higher levels of development as an economic bloc. Close monitoring also is recommended so that respective governments make sure that policies are enhancing meaningful production of cereals to ensure food reserves in times of need. Asian countries do monitor their policies closely and make sure that the intended objectives are met.

CONCLUSION

The analyses of the selected countries in Africa and Asia have shown that governments have taken an active role to ensure production of cereals in the agricultural sector. The policies put in place in the four countries under study have managed to enhance production although the extent of the success has been different across the four countries. This is mainly attributed to the fact that China and India are in the developed world category, while Nigeria and Kenya are in the developing world. Without government intervention it is not possible to realize meaningful production in agriculture.

RECOMMENDATIONS

SADC region has not been doing badly towards ensuring production of cereals but it has to ensure and upgrade its monitoring mechanisms. Loose policies that do not foster specifically given cereals have not done well to the region. Comprehensive policies are needed that would promote meaningful production in member states. Relying on imports is not good for food security. Food security is important to the region's survival and on that note policy formulation and implementation has to be strengthened for the benefit of all members of the region. Collective responsibility has to be taken by governments to develop policies that guarantee production of all cereals to levels that ensure adequate security and self-sufficiency for the region.

Food availability is an important aspect in an economy. In the event that trends leading to extreme food poverty are reversed, several other challenges will also be partially addressed. Improving food security would have positive

impacts on food access and utilization. On that note it is important for a government to foster much of its efforts on reducing food imports by intervening in agriculture activities.

REFERENCES

- Blanco M 2018. *The Impact of the Common Agricultural Policy on Developing Countries*. Belgium: European Union Trans European Policy Studies Association (TEPSA).
- Choge D 2012. *Agricultural Policy Research*. Nairobi: The Global Development Network.
- Cui Z, Zhang H, Chen X, Zhang C et al. 2018. Pursuing Sustainable Productivity with Millions of Smallholder Farmers. *Nature*, 555(7696): 363-366. From <<http://dx.doi.org/10.1038/nature25785>> (Retrieved on 21 June 2018).
- Food and Agriculture Organisation (FAO) 2018. *An Introduction to the Basic Concepts of Food Security*. Rome, Italy: Food and Agriculture Organization of the United Nations.
- Food and Agriculture Organisation (FAO) 2017. Statistics Division Data 2017. From <<http://www.fao.org/docrep/018/i3107e/i3107e00.htm>> (Retrieved on 16 February 2018).
- Government of Kenya 2015. Kenya Cereal Enhancement Programme. *Programme Design Report*. Volume 1. Nairobi: Government of Kenya.
- Indian Ministry of Agriculture Report 2015. *Food Grain Production*. New Delhi, India: Indian Ministry of Agriculture.
- Iwuchukwu JC, Igbokwe EM 2012. Lessons from agricultural policies and programmes in Nigeria. *Journal of Law, Policy and Globalization*, 5: 11-22.
- Khapayi M, Celliers P R 2016. Factors limiting and preventing emerging farmers to progress to commercial agricultural farming in the King William's town area of the Eastern Cape Province, South Africa. *South African Journal of Agricultural Extension*, 44(1): 25-41.
- Lioubimtseva E, Dronin NM, Kirilenko AP 2015. Grain production trends in the Russian Federation, Ukraine and Kazakhstan in the context of climate change and international trade. In: A Elberi (Ed.): *Climate Change and Food Systems: Global Assessments and Implications for Food Security and Trade*. Rome: Food Agriculture Organization of the United Nations (FAO), pp. 212-237.
- Matsumoto T, Yamano T 2010. The Impacts of Fertilizer Credit on Crop Production and Income in Ethiopia. *GRIPS Policy Research Center Discussion Paper* 10-23. Tokyo, Japan: National Graduate Institute for Policy Studies.
- Nzeka UM 2014. *Grain and Feed Annual Report 2014*. Lagos, Nigeria: Global Agricultural Information Network.
- Olga S 2017. *Food Import Substitution Turns Out to be Extremely Profitable*. Moscow, Russia: Vzgl'yad Publications.
- OXFAM 2015. *South Africa's Hidden Hunger: A Southern Africa Report*. Johannesburg, RSA: Oxfam International Publications.

- Pandey VL, Dev SM, Jayachandran U 2016. Impact of agricultural interventions on the nutritional status in South Asia: A review. *Food Policy*, 62: 28-40.
- Pingali PL 2012. Green revolution: Impacts, limits, and the path ahead. *Natl Acad Sci*, 2109(31): 12302-12308.
- Ugwu DS, Kanu IO 2012. Effects of agricultural reforms on the agricultural sector in Nigeria. *Journal of African Studies and Development*, 4(2): 51-59.
- Yao S 1999. Efficiency impacts of Government policy on agricultural production in the presence of externalities. *Journal of Environmental Management*, 55(1): 57-67.
- Xu Z, Zhang W, Li M 2014. China's grain production: A decade of consecutive growth or stagnation? *Monthly Review*, 66(1): 25-37.

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